

SEQUENCE LISTING

<110> Salbaum, Michael J.

<120> NOPE Polypeptides, Encoding Nucleic
Acids and Methods of Use

<130> P-NI 4552

<150> US 60/174,496

<151> 2000-01-04

<150> US 60/205,789

<151> 2000-05-19

<160> 45

<170> FastSEQ for Windows Version 4.0

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<212> DNA

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<221> CDS

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115 120 125	
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The following sequence was obtained from the DNA of the bacteriophage T4. The sequence is identical to that reported by S. D. Doolittle and J. Drenth (1968) for the DNA of the bacteriophage T4.

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Lys Trp Leu Leu Gln Ile Leu Asp Val Gln Asp Ser Asp Ala Gly Ser
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Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu Val Gly Pro Gly Pro Phe	
900 905 910	
tcc cgc ttg cag gat gtg att act ctg caa gag aca ttc tca gac tcc	2784
Ser Arg Leu Gln Asp Val Ile Thr Leu Gln Glu Thr Phe Ser Asp Ser	
915 920 925	

ttg gat gtg cac
Leu Asp Val His
930

2796

<210> 4
<211> 932
<212> PRT
<213> Mus musculus

<400> 4
Gly Glu Leu Pro Leu Pro Gln Glu Thr Thr Val Lys Leu Ser Cys Asp
1 5 10 15
Glu Gly Pro Leu Gln Val Ile Leu Gly Pro Glu Gln Ala Val Val Leu
20 25 30
Asp Cys Thr Leu Gly Ala Thr Ala Ala Gly Pro Pro Thr Arg Val Thr
35 40 45
Trp Ser Lys Asp Gly Asp Thr Val Leu Glu His Glu Asn Leu His Leu
50 55 60
Leu Pro Asn Gly Ser Leu Trp Leu Ser Ser Pro Leu Glu Gln Glu Asp
65 70 75 80
Ser Asp Asp Glu Glu Ala Leu Arg Ile Trp Lys Val Thr Glu Gly Ser
85 90 95
Tyr Ser Cys Leu Ala His Ser Pro Leu Gly Val Val Ala Ser Gln Val
100 105 110
Ala Val Val Lys Leu Ala Thr Leu Glu Asp Phe Ser Leu His Pro Glu
115 120 125
Ser Gln Ile Val Glu Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr
130 135 140
Lys Gly Leu Pro Ala Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr
145 150 155 160
Val Pro Glu Glu Pro Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln
165 170 175
Ile Leu Asp Val Gln Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala
180 185 190
Thr Asn Ser Ala Arg Gln Arg Phe Ser Gln Glu Ala Ser Leu Thr Val
195 200 205
Ala Leu Arg Gly Ser Leu Glu Ala Thr Arg Gly Gln Asp Val Val Ile
210 215 220
Val Ala Ala Pro Glu Asn Thr Thr Val Val Ser Gly Gln Asn Val Val
225 230 235 240
Met Glu Cys Val Ala Ser Ala Asp Pro Thr Pro Phe Val Ser Trp Val
245 250 255
Arg Gln Asp Gly Lys Pro Ile Ser Thr Asp Val Ile Val Leu Gly Arg
260 265 270
Thr Asn Leu Leu Ile Ala Ser Ala Gln Pro Arg His Ser Gly Val Tyr
275 280 285
Val Cys Arg Ala Asn Lys Pro Leu Thr Arg Asp Phe Ala Thr Ala Ala
290 295 300
Ala Glu Leu Arg Val Leu Ala Ala Pro Ala Ile Ser Gln Ala Pro Glu
305 310 315 320
Ala Leu Ser Arg Thr Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala
325 330 335

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

755		760		765
Gly Leu Arg Asn Ala Ser	Leu Val Thr Tyr Tyr Thr	Ser Ser Gly Glu		
770	775	780		
Asp Ile Leu Ile Gly Gly	Leu Lys Pro Phe Thr Lys Tyr Glu Phe Ala			
785	790	795	800	
Val Gln Ser His Gly Val	Asp Met Asp Gly Pro Phe Gly Ser Val Val			
805	810	815		
Glu Arg Ser Thr Leu Pro	Asp Arg Pro Ser Thr Pro Pro Ser Asp Leu			
820	825	830		
Arg Leu Ser Pro Leu Thr	Pro Ser Thr Val Arg Leu His Trp Cys Pro			
835	840	845		
Pro Thr Glu Pro Asn Gly	Glu Ile Val Glu Tyr Leu Ile Leu Tyr Ser			
850	855	860		
Asn Asn His Thr Gln Pro	Glu His Gln Trp Thr Leu Leu Thr Thr Glu			
865	870	875	880	
Gly Asn Ile Phe Ser Ala	Glu Val His Gly Leu Glu Ser Asp Thr Arg			
885	890	895		
Tyr Phe Phe Lys Met Gly	Ala Arg Thr Glu Val Gly Pro Gly Pro Phe			
900	905	910		
Ser Arg Leu Gln Asp Val	Ile Thr Leu Gln Glu Thr Phe Ser Asp Ser			
915	920	925		
Leu Asp Val His				
930				

<210> 5
 <211> 825
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)...(825)

<400> 5	
cga caa agc tcc cac agg gaa gcc ctt ccc gga ttg tcc tcc tca ggc	48
Arg Gln Ser Ser His Arg Glu Ala Leu Pro Gly Leu Ser Ser Ser Gly	
1 5 10 15	
acc cca gga aac cca gcg ctc tac aca aga gct cgg ctt ggg cct ccc	96
Thr Pro Gly Asn Pro Ala Leu Tyr Thr Arg Ala Arg Leu Gly Pro Pro	
20 25 30	
agt gtc cct gct gcc cat gag ttg gag tcc ctc gtg cat cct cgt ccc	144
Ser Val Pro Ala Ala His Glu Leu Glu Ser Leu Val His Pro Arg Pro	
35 40 45	
cag gat tgg tcc cca cca ccc tca gat gtg gaa gac aag gct gaa gta	192
Gln Asp Trp Ser Pro Pro Pro Ser Asp Val Glu Asp Lys Ala Glu Val	
50 55 60	
cac agc ctt atg ggt ggc agt gtt tca gat tgc cgg ggc cac tcc aag	240
His Ser Leu Met Gly Gly Ser Val Ser Asp Cys Arg Gly His Ser Lys	

65	70										75					80					
aga aag atc tcc tgg gct cag gca ggg gga cca aac tgg gca ggc tcc																					288
Arg Lys Ile Ser Trp Ala Gln Ala Gly Gly Pro Asn Trp Ala Gly Ser																					
	85										90					95					
tgg gca ggc tgt gag ctg ccc cag ggt agt ggt cca agg ccg gct ctg																					336
Trp Ala Gly Cys Glu Leu Pro Gln Gly Ser Gly Pro Arg Pro Ala Leu																					
	100										105					110					
acc cgt gct ctg ctg cct cca gcg gga acc ggg cag aca ctg ctg ctg																					384
Thr Arg Ala Leu Leu Pro Pro Ala Gly Thr Gly Gln Thr Leu Leu Leu																					
	115										120					125					
caa gcc ctg gtg tat gac ggc ata aag agc aac ggg aga aag aag ccg																					432
Gln Ala Leu Val Tyr Asp Gly Ile Lys Ser Asn Gly Arg Lys Lys Pro																					
	130										135					140					
tcc cca gcc tgc agg aat cag gtg gaa gct gag gtc att gtc cac tcc																					480
Ser Pro Ala Cys Arg Asn Gln Val Glu Ala Glu Val Ile Val His Ser																					
	145										150					155					160
gac ttc ggt gca tcc aaa gga tgt cct gac ctc cac ctc caa gac ctg																					528
Asp Phe Gly Ala Ser Lys Gly Cys Pro Asp Leu His Leu Gln Asp Leu																					
	165										170					175					
gag cca gag gaa cca ctg act gca gag act ctg cct tcc acg tct gga																					576
Glu Pro Glu Glu Pro Leu Thr Ala Glu Thr Leu Pro Ser Thr Ser Gly																					
	180										185					190					
gct gtg gat ctg tct caa gga gca gac tgg ctg ggc agg gag ctg gga																					624
Ala Val Asp Leu Ser Gln Gly Ala Asp Trp Leu Gly Arg Glu Leu Gly																					
	195										200					205					
ggg tgc caa cca aca acc agt ggg cca gag agg ctc acc tgc ttg cca																					672
Gly Cys Gln Pro Thr Thr Ser Gly Pro Glu Arg Leu Thr Cys Leu Pro																					
	210										215					220					
gaa gca gcc agt gcc tcc tgc tcc tgc tca gac ctc cag ccc agc act																					720
Glu Ala Ala Ser Ala Ser Cys Ser Cys Ser Asp Leu Gln Pro Ser Thr																					
	225										230					235					240
gct ata gag gag gcc cct ggg aaa agc tgc cag ccc aaa gcc ctg tgt																					768
Ala Ile Glu Glu Ala Pro Gly Lys Ser Cys Gln Pro Lys Ala Leu Cys																					
	245										250					255					
cct cta aca gtc agc cca agc ctt ccc agg gcc cct gtc tcc tct gct																					816
Pro Leu Thr Val Ser Pro Ser Leu Pro Arg Ala Pro Val Ser Ser Ala																					
	260										265					270					
cag gtc ccc																					825
Gln Val Pro																					
	275																				

<210> 6
 <211> 275
 <212> PRT
 <213> Mus musculus

<400> 6
 Arg Gln Ser Ser His Arg Glu Ala Leu Pro Gly Leu Ser Ser Ser Gly
 1 5 10 15
 Thr Pro Gly Asn Pro Ala Leu Tyr Thr Arg Ala Arg Leu Gly Pro Pro
 20 25 30
 Ser Val Pro Ala Ala His Glu Leu Glu Ser Leu Val His Pro Arg Pro
 35 40 45
 Gln Asp Trp Ser Pro Pro Pro Ser Asp Val Glu Asp Lys Ala Glu Val
 50 55 60
 His Ser Leu Met Gly Gly Ser Val Ser Asp Cys Arg Gly His Ser Lys
 65 70 75 80
 Arg Lys Ile Ser Trp Ala Gln Ala Gly Gly Pro Asn Trp Ala Gly Ser
 85 90 95
 Trp Ala Gly Cys Glu Leu Pro Gln Gly Ser Gly Pro Arg Pro Ala Leu
 100 105 110
 Thr Arg Ala Leu Leu Pro Pro Ala Gly Thr Gly Gln Thr Leu Leu Leu
 115 120 125
 Gln Ala Leu Val Tyr Asp Gly Ile Lys Ser Asn Gly Arg Lys Lys Pro
 130 135 140
 Ser Pro Ala Cys Arg Asn Gln Val Glu Ala Glu Val Ile Val His Ser
 145 150 155 160
 Asp Phe Gly Ala Ser Lys Gly Cys Pro Asp Leu His Leu Gln Asp Leu
 165 170 175
 Glu Pro Glu Glu Pro Leu Thr Ala Glu Thr Leu Pro Ser Thr Ser Gly
 180 185 190
 Ala Val Asp Leu Ser Gln Gly Ala Asp Trp Leu Gly Arg Glu Leu Gly
 195 200 205
 Gly Cys Gln Pro Thr Thr Ser Gly Pro Glu Arg Leu Thr Cys Leu Pro
 210 215 220
 Glu Ala Ala Ser Ala Ser Cys Ser Cys Ser Asp Leu Gln Pro Ser Thr
 225 230 235 240
 Ala Ile Glu Glu Ala Pro Gly Lys Ser Cys Gln Pro Lys Ala Leu Cys
 245 250 255
 Pro Leu Thr Val Ser Pro Ser Leu Pro Arg Ala Pro Val Ser Ser Ala
 260 265 270
 Gln Val Pro
 275

<210> 7
 <211> 243
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS

<222> (1)...(243)

<400> 7

cct gag cag gct gtg gtg ctg gac tgc act ttg ggg gct aca gct gct 48
Pro Glu Gln Ala Val Val Leu Asp Cys Thr Leu Gly Ala Thr Ala Ala
1 5 10 15

ggg cct ccg acc agg gtg aca tgg agc aag gat gga gac act gta cta 96
Gly Pro Pro Thr Arg Val Thr Trp Ser Lys Asp Gly Asp Thr Val Leu
20 25 30

gag cat gag aac ctg cac ctg cta ccc aat ggc tcc ctg tgg ctg tcc 144
Glu His Glu Asn Leu His Leu Leu Pro Asn Gly Ser Leu Trp Leu Ser
35 40 45

tca ccc cta gag caa gaa gac agc gat gat gag gaa gct ctt agg atc 192
Ser Pro Leu Glu Gln Glu Asp Ser Asp Asp Glu Glu Ala Leu Arg Ile
50 55 60

tgg aag gtc act gag ggc agc tat tcc tgt ctg gcc cac agc ccg cta 240
Trp Lys Val Thr Glu Gly Ser Tyr Ser Cys Leu Ala His Ser Pro Leu
65 70 75 80

gga 243
Gly

<210> 8

<211> 81

<212> PRT

<213> Mus musculus

<400> 8

Pro Glu Gln Ala Val Val Leu Asp Cys Thr Leu Gly Ala Thr Ala Ala
1 5 10 15

Gly Pro Pro Thr Arg Val Thr Trp Ser Lys Asp Gly Asp Thr Val Leu
20 25 30

Glu His Glu Asn Leu His Leu Leu Pro Asn Gly Ser Leu Trp Leu Ser
35 40 45

Ser Pro Leu Glu Gln Glu Asp Ser Asp Asp Glu Glu Ala Leu Arg Ile
50 55 60

Trp Lys Val Thr Glu Gly Ser Tyr Ser Cys Leu Ala His Ser Pro Leu
65 70 75 80

Gly

<210> 9

<211> 192

<212> DNA

<213> Mus musculus

<220>
<221> CDS
<222> (1)...(192)

<400> 9

gag aac ggg aca gca cgc ttt gaa tgc cac acc aag ggc ctt cca gcc	48
Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr Lys Gly Leu Pro Ala	
1 5 10 15	
ccc atc att act tgg gaa aag gac cag gtg acc gtg cct gag gag ccc	96
Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr Val Pro Glu Glu Pro	
20 25 30	
cgg ctc atc act ctt ccc aag tgg ctc ctc cag atc cta gat gtc cag	144
Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln Ile Leu Asp Val Gln	
35 40 45	
gac agt gat gca ggc tcc tac cgc tgc gtg gcc acc aat tca gcc cgc	192
Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala Thr Asn Ser Ala Arg	
50 55 60	

<210> 10
<211> 64
<212> PRT
<213> Mus musculus

<400> 10

Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr Lys Gly Leu Pro Ala	
1 5 10 15	
Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr Val Pro Glu Glu Pro	
20 25 30	
Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln Ile Leu Asp Val Gln	
35 40 45	
Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala Thr Asn Ser Ala Arg	
50 55 60	

<210> 11
<211> 189
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(189)

<400> 11

tct gga cag aat gta gtg atg gag tgc gtg gcc tct gct gac ccc acc	48
Ser Gly Gln Asn Val Val Met Glu Cys Val Ala Ser Ala Asp Pro Thr	
1 5 10 15	

ggc ctg cag gac gct ggc tac tac cag tgc gta gca gaa aac agc gcg 192

Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val Ala Glu Asn Ser Ala
50 55 60

gga
Gly
65

195

<210> 14
<211> 65
<212> PRT
<213> Mus musculus

<400> 14
Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala Ser Gly Glu Pro Arg
1 5 10 15
Pro Ala Leu His Trp Leu His Asp Gly Ile Pro Leu Arg Pro Asn Gly
20 25 30
Arg Val Lys Val Gln Gly Gly Gly Gly Ser Leu Val Ile Thr Gln Ile
35 40 45
Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val Ala Glu Asn Ser Ala
50 55 60
Gly
65

<210> 15
<211> 249
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(249)

<400> 15
agc gcc ccg act cgg gtc aca gcc acg ccg ctg agc agc tcc tct gtg 48
Ser Ala Pro Thr Arg Val Thr Ala Thr Pro Leu Ser Ser Ser Ser Val
1 5 10 15

ctg gtg gcc tgg gag cgg cct gag ttg cac agc gag caa atc att ggc 96
Leu Val Ala Trp Glu Arg Pro Glu Leu His Ser Glu Gln Ile Ile Gly
20 25 30

ttc tct ctt cac tac caa aag gca agg gga gtg gac aat gtg gag tac 144
Phe Ser Leu His Tyr Gln Lys Ala Arg Gly Val Asp Asn Val Glu Tyr
35 40 45

cag ttt gca gta aac aat gac acc aca gag ctg cag gtt cgg gac ctg 192
Gln Phe Ala Val Asn Asn Asp Thr Thr Glu Leu Gln Val Arg Asp Leu
50 55 60

gaa ccc aac acg gat tat gag ttc tac gtg gtg gcc tac tcc cag ctg 240

Glu Pro Asn Thr Asp Tyr Glu Phe Tyr Val Val Ala Tyr Ser Gln Leu
65 70 75 80

ggg gcc agc
Gly Ala Ser

249

<210> 16
<211> 83
<212> PRT
<213> Mus musculus

<400> 16
Ser Ala Pro Thr Arg Val Thr Ala Thr Pro Leu Ser Ser Ser Ser Val
1 5 10 15
Leu Val Ala Trp Glu Arg Pro Glu Leu His Ser Glu Gln Ile Ile Gly
20 25 30
Phe Ser Leu His Tyr Gln Lys Ala Arg Gly Val Asp Asn Val Glu Tyr
35 40 45
Gln Phe Ala Val Asn Asn Asp Thr Thr Glu Leu Gln Val Arg Asp Leu
50 55 60
Glu Pro Asn Thr Asp Tyr Glu Phe Tyr Val Val Ala Tyr Ser Gln Leu
65 70 75 80
Gly Ala Ser

<210> 17
<211> 249
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)...(249)

<400> 17
agc gca gca ccc cag ctt acc ttg tcc agc ccc aac ccc tcg gac atc 48
Ser Ala Ala Pro Gln Leu Thr Leu Ser Ser Pro Asn Pro Ser Asp Ile
1 5 10 15
agg gtg gca tgg ctg ccc ctg ccc tcc agc ctg agc aat gga cag gtg 96
Arg Val Ala Trp Leu Pro Leu Pro Ser Ser Leu Ser Asn Gly Gln Val
20 25 30
ctg aag tac aag ata gag tac ggt ttg ggg aag gaa gat cag gtt ttc 144
Leu Lys Tyr Lys Ile Glu Tyr Gly Leu Gly Lys Glu Asp Gln Val Phe
35 40 45
tcc acc gag gtg cct gga aat gag aca caa ctt acg tta aac tca ctt 192
Ser Thr Glu Val Pro Gly Asn Glu Thr Gln Leu Thr Leu Asn Ser Leu
50 55 60

cag cca aac aaa gtg tac cga gtc cgg att tca gct ggc act ggc gct 240
Gln Pro Asn Lys Val Tyr Arg Val Arg Ile Ser Ala Gly Thr Gly Ala
65 70 75 80

ggc tat gga 249
Gly Tyr Gly

<210> 18
<211> 83
<212> PRT
<213> Mus musculus

<400> 18
Ser Ala Ala Pro Gln Leu Thr Leu Ser Ser Pro Asn Pro Ser Asp Ile
1 5 10 15
Arg Val Ala Trp Leu Pro Leu Pro Ser Ser Leu Ser Asn Gly Gln Val
20 25 30
Leu Lys Tyr Lys Ile Glu Tyr Gly Leu Gly Lys Glu Asp Gln Val Phe
35 40 45
Ser Thr Glu Val Pro Gly Asn Glu Thr Gln Leu Thr Leu Asn Ser Leu
50 55 60
Gln Pro Asn Lys Val Tyr Arg Val Arg Ile Ser Ala Gly Thr Gly Ala
65 70 75 80
Gly Tyr Gly

<210> 19
<211> 288
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1) ... (288)

<400> 19
ttt gcc cct gca gaa ttg aag gtg agg gca aag atg gag tcc ctg gtg 48
Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val
1 5 10 15
gtg tca tgg cag ccg ccc cct cac ccc acc cag atc tct gga tac aaa 96
Val Ser Trp Gln Pro Pro Pro His Pro Thr Gln Ile Ser Gly Tyr Lys
20 25 30
ctc tac tgg gga gag gtg gga aca gag gag gag gca gat ggt gac cgc 144
Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Glu Ala Asp Gly Asp Arg
35 40 45
ccc cca ggg ggt cgt gga gat caa gct tgg gac gtc ggg ccc gtg cgg 192

Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg
50 55 60

ctg aag aag aaa gtg aag cag tat gaa ctg acc cag tta gtc cct ggc 240
Leu Lys Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly
65 70 75 80

agg ccg tac gag gtg aag ctc gta gct ttc aac aaa cac gag gac ggc 288
Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly
85 90 95

<210> 20
<211> 96
<212> PRT
<213> Mus musculus

<400> 20
Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val
1 5 10 15
Val Ser Trp Gln Pro Pro Pro His Pro Thr Gln Ile Ser Gly Tyr Lys
20 25 30
Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Glu Ala Asp Gly Asp Arg
35 40 45
Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg
50 55 60
Leu Lys Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly
65 70 75 80
Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly
85 90 95

<210> 21
<211> 246
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1) ... (246)

<400> 21
ctg cct cct gcc cat gtc cac gca gag tca aac agc tcc act tcc att 48
Leu Pro Pro Ala His Val His Ala Glu Ser Asn Ser Ser Thr Ser Ile
1 5 10 15
tgg ctt cgg tgg aag aag cca gac ttt acc act gtc aag att gtc aac 96
Trp Leu Arg Trp Lys Lys Pro Asp Phe Thr Thr Val Lys Ile Val Asn
20 25 30
tac act gta cgc ttc ggc ccc tgg ggg ctc agg aat gct tcc ctg gtc 144
Tyr Thr Val Arg Phe Gly Pro Trp Gly Leu Arg Asn Ala Ser Leu Val

35

40

45

acc tac tat acc agc tct gga gaa gac att ctc att ggc ggc ctg aaa 192
Thr Tyr Tyr Thr Ser Ser Gly Glu Asp Ile Leu Ile Gly Gly Leu Lys
50 55 60

cca ttt acc aag tac gag ttt gcg gta cag tcc cac gga gtg gat atg 240
Pro Phe Thr Lys Tyr Glu Phe Ala Val Gln Ser His Gly Val Asp Met
65 70 75 80

gat ggg 246
Asp Gly

<210> 22

<211> 82

<212> PRT

<213> Mus musculus

<400> 22

Leu Pro Pro Ala His Val His Ala Glu Ser Asn Ser Ser Thr Ser Ile
1 5 10 15
Trp Leu Arg Trp Lys Lys Pro Asp Phe Thr Thr Val Lys Ile Val Asn
20 25 30
Tyr Thr Val Arg Phe Gly Pro Trp Gly Leu Arg Asn Ala Ser Leu Val
35 40 45
Thr Tyr Tyr Thr Ser Ser Gly Glu Asp Ile Leu Ile Gly Gly Leu Lys
50 55 60
Pro Phe Thr Lys Tyr Glu Phe Ala Val Gln Ser His Gly Val Asp Met
65 70 75 80
Asp Gly

<210> 23

<211> 252

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (1)...(252)

<400> 23

aca cct cct tct gac ctg cgc ctg agc ccc ctg aca cca tcc acc gtt 48
Thr Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val
1 5 10 15

cgg tta cac tgg tgt ccc ccc acg gag ccc aat ggt gag att gtg gag 96
Arg Leu His Trp Cys Pro Pro Thr Glu Pro Asn Gly Glu Ile Val Glu
20 25 30

tat cta att ctc tac agc aac aac cac acc cag ccc gaa cac cag tgg	144
Tyr Leu Ile Leu Tyr Ser Asn Asn His Thr Gln Pro Glu His Gln Trp	
35 40 45	
aca ctg ctc acc aca gag gga aac atc ttc agt gca gag gtc cat ggc	192
Thr Leu Leu Thr Thr Glu Gly Asn Ile Phe Ser Ala Glu Val His Gly	
50 55 60	
cta gag agt gac act cgg tat ttc ttc aag atg gga gcc cgc aca gag	240
Leu Glu Ser Asp Thr Arg Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu	
65 70 75 80	
gtg ggg cct ggg	252
Val Gly Pro Gly	

<210> 24
 <211> 84
 <212> PRT
 <213> Mus musculus

<400> 24

Thr Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val	
1 5 10 15	
Arg Leu His Trp Cys Pro Pro Thr Glu Pro Asn Gly Glu Ile Val Glu	
20 25 30	
Tyr Leu Ile Leu Tyr Ser Asn Asn His Thr Gln Pro Glu His Gln Trp	
35 40 45	
Thr Leu Leu Thr Thr Glu Gly Asn Ile Phe Ser Ala Glu Val His Gly	
50 55 60	
Leu Glu Ser Asp Thr Arg Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu	
65 70 75 80	
Val Gly Pro Gly	

<210> 25
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 25
 aagcaggtga gcctctctgg cccact

<210> 26
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 26

cttgagacag atccacagct ccagac

26

<210> 27

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 27

atccgggaag ggcttccttg tgggagcttc

30

<210> 28

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 28

gcgctgggga catcgctccag tgtatg

26

<210> 29

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 29

gttccaggtc ccgaacctgc agctctgt

28

<210> 30

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 30

ccactcccct tgccttttgg tagtgaa

27

<210> 31

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 31

gtgctgacct tctgctgct g

21

<210> 32

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 32

ctctgtctgc tacactggtc aa

22

<210> 33

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 33

tggacgccaa ggagttgg

18

<210> 34

<211> 19

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